Chapter 15
Enhancing Fuzzy Inference System-Based Criterion-Referenced Assessment with a Similarity Reasoning Technique

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ABSTRACT

A search in the literature reveals that the use of fuzzy inference system (FIS) in criterion-referenced assessment (CRA) is not new. However, literature describing how an FIS-based CRA can be implemented in practice is scarce. Besides, for an FIS-based CRA, a large set of fuzzy rules is required and it is a rigorous work in obtaining a full set of rules. The aim of this chapter is to propose an FIS-based CRA procedure that incorporated with a rule selection and a similarity reasoning technique, i.e., analogical reasoning (AR) technique, as a solution for this problem. AR considers an antecedent with an unknown consequent as an observation, and it deduces a conclusion (as a prediction of the consequent) for the observation based on the incomplete fuzzy rule base. A case study conducted in Universiti Malaysia Sarawak is further reported.

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